

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
9 June 2005 (09.06.2005)

PCT

(10) International Publication Number  
**WO 2005/052848 A2**

(51) International Patent Classification<sup>7</sup>: **G06K 9/00**

(21) International Application Number:  
PCT/GB2004/004714

(22) International Filing Date:  
9 November 2004 (09.11.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
0326539.4 14 November 2003 (14.11.2003) GB

(71) Applicant (for all designated States except US): **QINETIQ LIMITED** [GB/GB]; Registered Office, 85 Buckingham Gate, London SW1E 6PD (GB).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **SPENCE, Geoffrey**

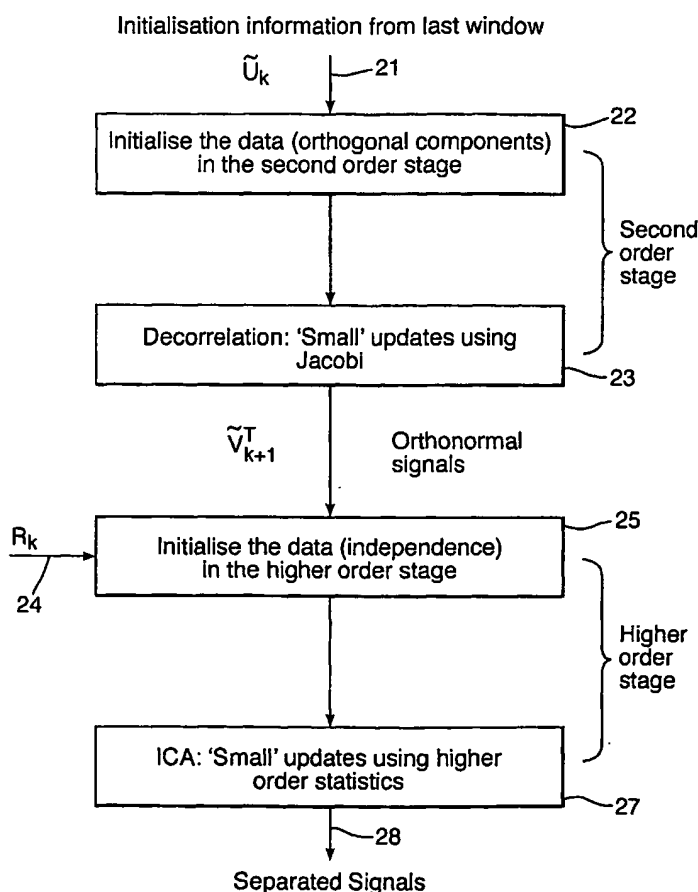
[GB/GB]; QinetiQ Limited, Malvern Technology Centre, E building Room 510, St Andrews Road, Malvern, Worcs. WR14 3PS (GB). **CLARKE, Ira, James** [GB/GB]; Little Clevelode Farm, Little Clevelode, Malvern, Worcs WR13 6PE (GB). **McWHIRTER, John, Graham** [GB/GB]; QinetiQ Limited, Malvern Technology Centre, St Andrews Road, Malvern, Worcs WR11 2ET (GB).

(74) Agent: **WILLIAMS, A., W., S.**; QinetiQ Ltd, IP Formalities, Cody Technology Park, A4 Building, Room G016, Ively Road, Farnborough, Hampshire GU14 0LX (GB).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,

[Continued on next page]

(54) Title: DYNAMIC BLIND SIGNAL SEPARATION



(57) Abstract: A method for dynamic blind signal separation generates initialisation information by processing an immediately preceding data window. This information is input at (21) and used at (22) to initialise orthogonality of data in an immediately following window. Initialised data are decorrelated at (23) with small update angles using a Jacobi technique. Steps (22) and (23) are collectively a second order stage of processing in statistical terms producing orthonormal signals. The orthonormal signals are initialised at (25) and then undergo separation at (27) by ICA with small angle updates using statistics higher than second order to produce separated signals. The method may be implemented in an acquisition phase to separate signals and among them identify desired signals, and a subsequent phase in which only the desired signals are separated. It may also be implemented by obtaining first results, and subsequently iteratively updating immediately preceding results using subsequent data snapshots to produce snapshot results for combining with immediately preceding results weighted to produce exponential fading.



TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

- (84) **Designated States** (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Declaration under Rule 4.17:**

— *of inventorship (Rule 4.17(iv)) for US only*

**Published:**

— *without international search report and to be republished upon receipt of that report*

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*